

MIGRATORY DESTINATION OF HUMPBACK WHALES WINTERING IN MEXICAN PACIFIC.

(ABSTRACT) Migratory destinations of humpback whales (*Megaptera novaeangliae*) that winter off the Pacific coast of Mexico were examined using photo-identification. Fluke photographs taken from the three main whale aggregations in this area: 383 from Mainland coast; 471 from Baja California Peninsula; and 450 from Revillagigedo Archipelago, photographed between 1983 and 1993 were compared with collections from all known feeding grounds in the North Pacific: off California-Oregon-Washington (COW, 593); off British Columbia (BC, 48); off southeastern Alaska (SEA, 429); Prince William Sound (PWS, 141); and from western Gulf of Alaska (WGOA, 133). The migratory movements of these whales were clearly non-random. Results of the photographic comparisons and statistical tests show clear evidence for preferred migratory destinations of humpback whales from Mainland and Baja California to COW and BC feeding regions. Nevertheless, differences in whale abundance estimates indicate the presence of some unsampled feeding region(s). The picture is different for the Revillagigedo region; although we found matches with all the

feeding regions sampled, no principal migratory destination was detected. This supports the assumption that humpback whales from Revillagigedo belong to a stock separate to the 'American' stock. Based on known abundance estimates, historical whaling records and genetic structure of the populations, we propose that these whales could occupy their historical distribution off the Aleutian Islands and/or the Bering Sea and this feeding ground(s) would be the main summer destination of the whales from Revillagigedo and the area were the missing whales from Baja California, Mainland, Japan and Hawaii feed. Our data from different regions of Mexico support the conclusion that a link between the known BC-COW areas and Baja California-Mainland-Central America regions evidences a distinct subpopulation. We also conclude that this coastal subpopulation is relatively distinct from that of Revillagigedo; however the preferred summer destination for this subpopulation is still unknown.

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GENETIC RELATEDNESS AND POPULATION COMPOSITION IN HUMPBACK WHALES MIGRATING OFF EASTERN AUSTRALIA.

(ABSTRACT) A combination of nuclear and mitochondrial genetic markers were employed to investigate, a) the role of kinship in group formation during the humpback whale (*Megaptera novaeangliae*) migration, and b) the population composition of whales travelling along the eastern Australian migratory corridor.

We analysed 57 pods sampled off eastern Australia throughout the 1992 migration. The sample included 99 males and 43 females (skewed sex-ratio reflecting male predominance in migrating humpback whales). Pod size ranged between 2 and 5 individuals. In 43 (75.4%) pods all members were sampled. All individual whales were screened for 8 nuclear genetic markers (microsatellites). A total of 90 (63.4%) individuals were sequenced for a portion (371bp) of the mitochondrial DNA control region, both to verify kinship identification and to assess the stock composition of the study population.

Individual genetic profiles were compared at three levels, in order to identify: identical genotypes, parent/offspring

pairs and relatedness among individuals (within/between groups, between sexes and between migratory phases). In the attempt to identify eventual kin aggregations among whales migrating in spatial and/or temporal proximity, both pods and 'day-clusters' (whales sampled on the same day) were used in our analyses. Mitochondrial haplotypes were compared with those available from world-wide conspecifics.

Twenty-one pairs of first-degree relatives were found. Apart from females with neonates or yearlings (4), migrating whales of either sex did not seem to select their partners based on kinship at any stage of the migration. Our data suggest that the study animals were representative of a large, panmictic population.

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MANAGEMENT AND MONITORING OF HERVEY BAY WHALE WATCHING: QUEENSLAND PARKS AND WILDLIFE SERVICE.

(ABSTRACT) The Hervey Bay whale watch industry grew from a small fleet of local vessels operated by commercial fishers who realised the potential of humpback whale (*Megaptera novaeangliae*) watching in the waters of Hervey Bay. As popularity grew the Department of Environment and Conservation realised the need to manage and monitor human activities near humpback whales to ensure their protection. In 1989 the Hervey Bay Marine Park was gazetted and a zoning plan released.

Under Queensland's *Nature Conservation Act 1992*, humpback whales are declared a protected species and scheduled as 'vulnerable'. The *Nature Conservation (Whales and Dolphins) Conservation Plan 1997* was released to protect cetaceans in Queensland waters.

From August 1 to November 30 each year, the Hervey Bay Marine Park is zoned as a Whale Management and Monitoring Area. Today, Queensland Parks and Wildlife

Service (QPWS) are the responsible agency for permitted activities relating to humpback whales. A maximum of twenty commercial whale watch permits are available under the QPWS policy model (which dictates vessel lengths and speeds for commercial whale watching) and the *Nature Conservation (Whales and Dolphins) Conservation Plan 1997* to assist management of tourist programs based on humpback whales, and associated vessel use.

QPWS compliance monitoring includes vessel patrols and covert operations. A *Standard for Whale Watching Educational Programs* has been developed as a tool to ensure commercial whale watch programs provide information to clients of a standard satisfactory to the Chief Executive of QPWS.

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